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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,632	10/31/2005	Jeong-Il Seo	51876P839	6223

8791 7590 06/18/2009

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EXAMINER	
LEE, PING	

ART UNIT	PAPER NUMBER
2614	

MAIL DATE	DELIVERY MODE
06/18/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/531,632	SEO ET AL.	
	Examiner	Art Unit	
	Ping Lee	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 June 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. The request for a continued prosecution application (CPA) under 37 CFR 1.53(d) filed on [1] is acknowledged. 37 CFR 1.53(d)(1) was amended to provide that the CPA must be for a design patent and the prior application of the CPA must be a design application that is complete as defined by 37 CFR 1.51(b). See *Elimination of Continued Prosecution Application Practice as to Utility and Plant Patent* Applications, final rule, 68 *Fed. Reg.* 32376 (May 30, 2003), 1271 *Off. Gaz. Pat. Office* 143 (June 24, 2003). Since a CPA of this application is not permitted under 37 CFR 1.53(d)(1), the improper request for a CPA is being treated as a request for continued examination of this application under 37 CFR 1.114.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Potard et al. (hereafter Potard) ("Using XML Schemas to Create and Encode Interactive 3-D Audio Scenes for Multimedia and Virtual Reality Applications") in view of Pihkala et al. (hereafter Pihkala) ("Proceedings of the 2003 International Conference on Auditory Display").

The similarities between the claimed invention specified in claims 1, 5 and 9 compared with Potard will be discussed first. Their differences will be addressed immediately follow.

Regarding claims 1 and 9, Potard discloses a method and a data stream for generating a three-dimensional audio scene (see title) with a sound source whose spatiality is extended (as discussed under "Introduction", a complex object is usually made of several individual sound objects; for example, in order to simulate a choir, a singer object is duplicated many times with a position change, each singer object represents a single singer; see section 2.3.1 ; the locations of the plurality of singer objects represent how the spatiality is extended), comprising the steps of:

a) generating a sound object (the choir) composing the audio scene (for example, as illustrated in Fig. 5); and

b) generating three-dimensional audio scene description information (see Table 1, several objects in the scene are defined by their corresponding parameters) including sound source characteristics information for the sound object (e.g., describing the environment and the choir based on each singer object; see section 2.3.1), the three-dimensional audio scene description information including a plurality of point sound sources (multiple duplicated singer objects) that model the sound source (the choir), wherein the sound source characteristics information includes spatiality extension information of the sound source, said spatiality extension information enabling the sound source to include more than one dimension, and includes the size (how many

times that the singer object is being duplicated) and shape of the sound source expressed in a three-dimensional space (e.g., the layout of the choir).

Regarding claim 5, Potard discloses a method for consuming a three-dimensional audio scene (see title) with a sound source whose spatiality is extended (as discussed under "Introduction", a complex object is usually made of several individual sound objects; for example, in order to simulate a choir, a singer object is duplicated many times with a position change, each singer object represents a single singer; see section 2.3.1), comprising the steps of:

a) receiving (through WEB for example with full description of sound scenes; see section 1) a sound object composing the audio scene and three-dimensional audio scene description information (see Table 1, many objects in the scene are defined by their corresponding parameters) including sound source characteristics information for the sound object (see section 3.1), the three-dimensional audio scene description information including a plurality of point sound sources that model the sound source (under "Introduction", several individual sound objects model the macro-object; if choir is the claimed sound source, then the plurality of duplicated singer objects are the point sound sources); and

b) outputting the sound object based on the three-dimensional audio scene description information ("3-D Sound" in Fig. 6),

wherein the sound source characteristics information includes spatiality extension information, said spatiality extension information enabling the sound source to include more than one dimension, and includes the size and shape of the sound source

expressed in a three-dimensional space (see rejection for claim 1). The sound object (e.g. choir) includes a plurality of point sound source (plurality of duplicated singer objects).

Potard fails to show that the size of the sound source is determined by a difference of coordinates in the three-dimensional space from a center of the sound source represented by the spatiality extension information as specified in claims 1, 5 and 9. Potard teaches that the size and shape of the sound source would be defined by parameters, but fails to explicitly teach how to do so in terms of using the coordinates. Pihkala teaches that the size of the sound source could be determined by a difference of coordinates ("by adding front, back and depth attributes" in sect. 3.1) in the three-dimensional space from a center of the sound source represented by the spatiality extension information. Thus, it would have been obvious to one of ordinary skill in the art to modify Potard in view of Pihkala by defining the size of the sound source based on the difference of the coordinates in order to provide a way to define the sound source having three dimensions.

Potard also fails to explicitly show that the plurality of point sound sources are located on a surface defined by the three-dimensional space. Potard teaches how to define a macro-object (e.g., the choir) by grouping several point sound sources (a singer object), cloning the same point sound source or so on (see section 2.3.1). The specific examples provided by Potard are a choir (Fig. 1) and an automobile ("Introduction"). Comparing with the claimed language, the claimed sound object reads on the choir, for example, and the plurality of point sound sources read on many cloned

singer objects. Potard suggests that one can also define other macro objects, such as a Jazz Band, a speaker or a crowd, as well. One skilled in the art could see that each of the suggested complex sound sources has its own unique shape and size occupied in a three-dimensional space. Potard implies that a complex sound source with specific dimension occupied in three-dimensional space could be defined by several cloned point sound sources. A complex sound source defined by a plurality of point sound sources (multiple cloned sound sources) located on a surface is just a specific type of complex sound source. Potard even teaches "using one 'splash' sound repeated many times over a surface" in section 2.3.1. By providing each cloned point sound source with a position change, the locations of the point sound sources at the boundaries inherently provide information on the size and shape of the sound source.

Potard fails to show that the plurality of the point sound source are distributed uniformly over a surface defined by the three-dimensional space. One of the examples provided by Potard is simulating a choir by duplicating a single singer multiple times. It was well known to the general public that the singers in a choir could be arranged in different layouts depending on the direction of the music director/conductor. However, one common layout is to arrange a plurality of singers uniformly on multiple parallel straight/curved lines. A surface is formed by these uniformly distributed singers. With this layout, the claimed "the plurality of point sound sources are distributed uniformly over a surface defined by the three-dimensional space" is met. Of course, Potard as a whole does not intend to limit the specific layout for each macro sound source. Thus, it would have been obvious to one of ordinary skill in the art to modify Potard and Pihkala

to define a specific complex sound source by allowing the user to determine how to duplicate each point sound source (e.g. the single singer) in terms of its location with respect to other point sound source, such as uniformly distributed the point sound sources over a surface, in order to simulate the sound effect of the particular macro sound object that having specific layout with its size and shape for the audio scene.

Regarding claims 2, 3, 6, 7, 10, 11 and 13-15, Potard discloses that the spatiality extension information of the sound source includes sound source dimension information that is expressed as three components of a set of three-dimensional coordinates (section 2.5.2) with a geometrical center location information (original location).

Regarding claims 4, 8 and 12, Potard discloses that the spatiality extension information of the sound source further includes direction information of the sound source (for example the directivity of the macro-object defining choir) and describes a three-dimensional audio scene by extending the spatiality of the sound source in a direction vertical to the direction of the sound source (by duplicating macro-object in a direction vertical to the direction of the directivity of the macro-object defining choir).

Response to Arguments

4. Applicant's arguments filed 6/8/09 have been fully considered but they are not persuasive.

On p. 6 of the remarks, applicant stated that "However, both Potard and Pihkala fail to disclose uniform distribution of point sound sources as recited in amended claim 1. Thus, the combination of Potard and Pihkala fails to disclose each element of

amended claim 1." This is not convincing. The rejection is under 35 U.S.C 103 based on Potard in view of Pihkala. As explained in the rejection above, Potard does not limit how to arrange each point sound source with respect to other point sound sources of a macro object. Potard provides a reasonable suggestion to enable one skilled in the art to define a complex sound source in a preferred way, including using uniform distribution of a plurality of point sound sources. For example, when defining a choir, one of ordinary skill in the art could arrange a plurality of single singers (it is actually the mouth of the single singer) to be uniform distributed on a surface in order to simulate a specific layout. The size of the choir is set by the user because he/she decides on how many single singers are being duplicated. The shape of the choir is also set by the user because he/she decides where to locate each single singer in the choir. Therefore, the various size and shape of the macro objects could be defined by the user depending on how many and how to locate each point sound source on a surface.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ping Lee whose telephone number is 571-272-7522. The examiner can normally be reached on Wednesday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian C. Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ping Lee/
Primary Examiner, Art Unit 2614

pwl